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EXAMINER	
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ART UNIT	PAPER NUMBER
2123	

DATE MAILED: 09/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/510,053	NIXON ET AL.	
	Examiner	Art Unit	
	Kandasamy Thangavelu	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 July 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 February 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 4/2/04
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Introduction

1. This communication is in response to the Applicants' Response mailed on July 28, 2005. Claims 1, 6, 12 and 19 were amended. Claims 1-21 of the application are pending. This office action is made final.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

3. The factual inquiries set forth in Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1, 6-8, 10-12 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Leibold** (U.S. Patent 5,818,736) in view of **Brown et al.** (U.S. Patent 6,377,859).

4.1 **Leibold** teaches system and method for simulating signal flow through a logic block pattern of a real time process control system. Specifically, as per claim 1, **Leibold** teaches an apparatus for use with a distributed process control system having a user workstation remotely located from a distributed controller that controls one or more field devices using control modules (CL1, L24-27; CL1, L33-35; CL1, L38-41; Fig. 3A and 3B); the apparatus comprising:

a computer having a memory and a processing unit (Fig. 3A; Fig. 3B, Items 370, 375 and 385);

a configuration application stored in the memory of the computer which when executed on the user workstation or computer creates one or more control modules for execution by the distributed controller and a further module for execution by a device separated from the distributed controller (CL3, L47-59; Fig. 2, Items 220 and 250; Cl1, L38-42; CL9, L53-62; CL10, L7-13; CL10, L17-20); and

a controller application stored in the memory of the computer which may be executed on the processing unit of the computer (CL1, L24-26; CL2, L49-52; CL2, L54-6; CL3, L2-8);

wherein the configuration application, when executed on the computer, further creates the one of the control modules for use by the distributed controller within the

distributed process control system (CL3, L47-59; Fig. 2, Item 250; CL9, L53-62; CL10, L7-13; CL10, L17-20).

Leibold teaches that at least one of the control modules is created to communicate with a user interface module to perform a control activity (CL4, L5-10) and with a simulation module to perform simulation (CL2, L49-52; CL2, L54-67; CL3, L2-8; CL9, L19-30). **Leibold** does not expressly teach that at least one of the control modules is created to communicate with the further module within the device separated from the distributed controller to perform a control activity. **Brown et al.** teaches that at least one of the control modules is created to communicate with the further module within the device separated from the distributed controller to perform a control activity (CL2, L1-25), as that allows devices made by different manufacturers to interoperate, the process control to be decentralized and the distributed control systems to be simplified (CL2, L14-18). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the apparatus of **Leibold** that included at least one of the control modules being created to communicate with a user interface module to perform a control activity and with a simulation module to perform simulation with the apparatus of **Brown et al.** that included at least one of the control modules being created to communicate with the further module within the device separated from the distributed controller to perform a control activity. The artisan would have been motivated because that would allow at least one of the control modules being created to communicate with a further module in a device separated from the distributed controller to perform a control

activity; and allow the devices made by different manufacturers to interoperate, the process control to be decentralized and the distributed control systems to be simplified.

Leibold teaches that the controller application when executed on the distributed controller implements the one of the control modules during operation of the distributed process control system (CL1, L33-35; CL1, L38-41; CL10, L7-13). **Leibold** does not expressly teach that the controller application when executed on the distributed controller implements the one of the control modules during operation of the distributed process control system to communicate with the further module to perform the control activity. **Brown et al**. teaches that the controller application when executed on the distributed controller implements the one of the control modules during operation of the distributed process control system to communicate with the further module to perform the control activity (CL2, L1-25), as that allows devices made by different manufacturers to interoperate, the process control to be decentralized and the distributed control systems to be simplified (Col 2, Lines 1- 14; Lines 14-25). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the apparatus of **Leibold** with the apparatus of **Brown et al**. that included the controller application when executed on the distributed controller implementing the one of the control modules during operation of the distributed process control system to communicate with the further module to perform the control activity. The artisan would have been motivated because that would allow devices made by different manufacturers to interoperate, the process control to be decentralized and the distributed control systems to be simplified.

Leibold teaches that the controller application when executed on the computer causes execution of the one of the control modules and the further module within the

computer to simulate the operation of the one of the control modules to thereby simulate operation of the distributed process control system (CL2, L49-52; CL2, L54-67; CL3, L2-8; CL9, L19-30). **Leibold** does not expressly teach that the controller application when executed on the computer causes execution of the one of the control modules and the further module within the computer to simulate the operation of the one of the control modules including simulating communicating with the further module. **Brown et al.** teaches execution of the one of the control modules and the further module within the computer including communicating with the further module (CL2, L1-25), as that allows devices made by different manufacturers to interoperate, the process control to be decentralized and the distributed control systems to be simplified (Col 2, Lines 1- 14; Lines 14-25). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the apparatus of **Leibold** that included the controller application when executed on the computer causing execution of the one of the control modules and the further module within the computer to simulate the operation of the one of the control modules to thereby simulate operation of the distributed process control system with the apparatus of **Brown et al.** that included execution of the one of the control modules and the further module within the computer including communicating with the further module. The artisan would have been motivated because that would allow the controller application when executed on the computer causing execution of the one of the control modules and the further module within the computer to simulate the operation of the one of the control modules including simulating communicating with the further module; and that would allow devices made by different manufacturers to be simulated.

4.2 As per Claim 6, **Leibold** and **Brown et al.** teach the apparatus of claim 1. **Leibold** teaches that the configuration application when executed on the user workstation or the computer creates a further control module (this is an updated version of the original control module) for execution within the distributed controller during operation of the distributed process control system (CL3, L47-59; Fig. 2, Item 250; CL9, L53-62; CL10, L7-13; CL10, L17-20).

4.3 As per Claim 7, **Leibold** and **Brown et al.** teach the apparatus of claim 1. **Leibold** teaches that the configuration application when executed, creates the further module to be executed within one of the field devices communicatively connected to the distributed controller during the operation of the distributed process control system (CL3, L47-59; Fig. 2, Item 250; CL9, L53-62; CL10, L7-13; CL10, L17-20).

4.4 As per Claim 8, **Leibold** and **Brown et al.** teach the apparatus of claim 1. **Leibold** teaches that the apparatus further includes a simulation application stored in the memory of the computer which when executed on the processing unit of the computer, communicates with the controller application within the computer to simulate the operation of the distributed process control system (CL2, L49-52; CL2, L54-67; CL3, L2-8; CL9, L19-30).

4.5 As per Claim 10, **Leibold** and **Brown et al.** teach the apparatus of claim 1. **Leibold** teaches the controller application executed on the computer (CL2, L49-52; CL2,

L54-67). **Leibold** does not expressly teach that the controller application when executed on the computer communicates with a further controller that is of a different type than the distributed controller of the distributed process control system. **Brown et al.** teaches that the controller application when executed on the computer communicates with a further controller that is of a different type than the distributed controller of the distributed process control system (CL2, L1-25), as that allows devices made by different manufacturers to interoperate, the process control to be decentralized and the distributed control systems to be simplified (CL2, L14-18). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the apparatus of **Leibold** with the apparatus of **Brown et al.** that included the controller application when executed on the computer communicating with a further controller that is of a different type than the distributed controller of the distributed process control system. The artisan would have been motivated because that would allow at least one of the control modules being created to communicate with a further module in a device separated from the distributed controller to perform a control activity; and allow the devices made by different manufacturers to interoperate, the process control to be decentralized and the distributed control systems to be simplified.

4.6 As per Claim 11, **Leibold** and **Brown et al.** teach the apparatus of claim 10. **Leibold** teaches the apparatus further including a viewing application stored in the memory of the computer which, when executed on the processing unit of the computer, communicates with the controller application and uses a user interface to display information (CL4, L5-10).

Leibold does not expressly teach a viewing application stored in the memory of the computer which, when executed on the processing unit of the computer, communicates with the controller application and uses a user interface to display information sent from the further controller. **Brown et al.** teaches execution of the one of the control modules within the computer including communicating with the further module (CL2, L1-25), as that allows devices made by different manufacturers to interoperate, the process control to be decentralized and the distributed control systems to be simplified (Col 2, Lines 1- 14; Lines 14-25). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the apparatus of **Leibold** that included the apparatus further including a viewing application stored in the memory of the computer which, when executed on the processing unit of the computer, communicated with the controller application and used a user interface to display information with the apparatus of **Brown et al.** that included execution of the one of the control modules within the computer including communicating with the further module. The artisan would have been motivated because that would allow a viewing application stored in the memory of the computer which, when executed on the processing unit of the computer, to communicate with the controller application and use a user interface to display information sent from the further controller; and that would allow devices made by different manufacturers to be simulated.

4.7 As per Claims 12, 17 and 18, these are rejected based on the same reasoning as Claims 1, 7 and 8, supra. Claims 12, 17 and 18 are method claims reciting the same limitations as Claims 1, 7 and 8, as taught throughout by **Leibold** and **Brown et al.**

5. Claims 2, 3, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Leibold** (U.S. Patent 5,818,736) in view of **Brown et al.** (U.S. Patent 6,377,859), and further in view of **Admitted prior art.**

5.1 As per Claim 2, **Leibold** and **Brown et al.** teach the apparatus of claim 1. **Leibold** teaches the apparatus further including a viewing application stored in the memory of the computer to be executed on the processing unit of the computer, wherein the viewing application when executed on the computer uses the user interface to display information pertaining to the one of the control modules to a user (CL4, L5-10).

Leibold does not expressly teach that the configuration application when executed on the computer creates a user interface for use in displaying information to a user. **Admitted prior art** teaches that the configuration application when executed on the computer creates a user interface for use in displaying information to a user (Page 2, L17-19), as that enables changes to be made to the user interface and the user interfaces used by the viewing applications to be tested (Page 8 describing prior art Fig. 1, L22-26). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the apparatus of **Leibold** with the apparatus of **Admitted prior art** that included the configuration application when executed on the computer creating a

user interface for use in displaying information to a user. The artisan would have been motivated because that would enable changes to be made to the user interface and the user interfaces used by the viewing applications to be tested.

5.2 As per Claim 3, **Leibold** and **Brown et al.** teach the apparatus of claim 1. **Leibold** does not expressly teach that the apparatus further includes a configuration database application stored in the memory of the computer to be executed on the processing unit of the computer, wherein the configuration database application when executed on the computer, communicates with the controller application within the computer to manage a configuration database. **Admitted prior art** teaches that the apparatus further includes a configuration database application stored in the memory of the computer to be executed on the processing unit of the computer (Page 2, L29 to Page 3, L3; Page 4, L21-24), wherein the configuration database application when executed on the computer, communicates with the controller application within the computer to manage a configuration database (Page 8 describing prior art Fig. 1, L12-14), as that would reduce the amount of hardware required by designing the system so that the configuration database application runs on the same PC as the control application and the viewing application (Page 4, L21-24). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the apparatus of **Leibold** with the apparatus of **Admitted prior art** that included the apparatus further including a configuration database application stored in the memory of the computer to be executed on the processing unit of the computer, wherein the configuration database application when executed on the computer, communicates with the controller application within the

computer to manage a configuration database. The artisan would have been motivated because that would reduce the amount of hardware required by designing the system so that the configuration database application runs on the same PC as the control application and the viewing application.

5.3 As per Claims 13 and 14, these are rejected based on the same reasoning as Claims 2 and 3, supra. Claims 13 and 14 are method claims reciting the same limitations as Claims 2 and 3, as taught throughout by **Leibold, Brown et al**. and **Admitted prior art.**

6. Claims 4, 5, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Leibold** (U.S. Patent 5,818,736) in view of **Brown et al**. (U.S. Patent 6,377,859), and further in view of **Bowling** (PCT WO 97/45778).

6.1 As per Claim 4, **Leibold** and **Brown et al**. teach the apparatus of claim 1. **Leibold** does not expressly teach that the controller application includes an execution rate parameter specifying the rate of execution of the one of the control modules within the computer. **Bowling** teaches that the controller application includes an execution rate parameter specifying the rate of execution of the one of the control modules within the computer (abstract; Page 2, Para 2; Page 4, Para 2), as that facilitates running the control procedures of the plant at a rate faster or slower than real time and the design and test of a part or the overall control of the industrial plant (Page 2, Para 2) and design, test and verification of various control system strategies in a comprehensive manner using

appropriate simulation models (Page 4, Para 3). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the apparatus of **Leibold** with the apparatus of **Bowling** that included the controller application including an execution rate parameter specifying the rate of execution of the one of the control modules within the computer. The artisan would have been motivated because that would facilitate running the control procedures of the plant at a rate faster or slower than real time and the design and test of a part or the overall control of the industrial plant and design, test and verification of various control system strategies in a comprehensive manner using appropriate simulation models.

6.2 As per Claim 5, **Leibold, Brown et al.** and **Bowling** teach the apparatus of claim 4. **Leibold** does not expressly teach that the execution rate parameter can be set to be greater than or less than a real time execution rate of the one of the control modules when the one of the control modules is executed within the distributed controller of the distributed process control system. **Bowling** teaches that the execution rate parameter can be set to be greater than or less than a real time execution rate of the one of the control modules when the one of the control modules is executed within the distributed controller of the distributed process control system (Page 2, Para 2), as that would allow the design, test and verification of control system strategies in a more comprehensive manner using appropriate simulation models (Page 4, Para 3). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the apparatus of **Leibold** with the apparatus of **Bowling** that included the execution rate parameter to be set to be greater than or less than a real time execution rate of the one of

the control modules when the one of the control modules was executed within the distributed controller of the distributed process control system. The artisan would have been motivated because that would allow the design, test and verification of control system strategies in a more comprehensive manner using appropriate simulation models.

6.3 As per Claims 15 and 16, these are rejected based on the same reasoning as Claims 4 and 5, supra. Claims 15 and 16 are method claims reciting the same limitations as Claims 4 and 5, as taught throughout by **Leibold, Brown et al.** and **Bowling.**

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Leibold** (U.S. Patent 5,818,736) in view of **Brown et al.** (U.S. Patent 6,377,859), and further in view of **Admitted prior art** and **Santoline et al.** (PCT WO 97/38362).

7.1 As per Claim 9, **Leibold** and **Brown et al.** teach the apparatus of claim 1. **Leibold** does not expressly teach that the controller application when executed within the distributed controller, communicates with the field devices through an input/output device. **Admitted prior art** teaches that the controller application when executed within the distributed controller, communicates with the field devices through an input/output device (Fig. 1, Item 16), because as per **Santoline et al.** that would allow the controller to receive sensor signals from the field devices and send control signals generated by the controller modules to the filed devices (Page 1, L9-13). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the apparatus of **Leibold** with the apparatus of **Admitted prior art** that included the

controller application when executed within the distributed controller, communicating with the field devices through an input/output device. The artisan would have been motivated because that would allow the controller to receive sensor signals from the field devices and send control signals generated by the controller modules to the filed devices.

8. Claims 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Leibold** (U.S. Patent 5,818,736) in view of **Brown et al.** (U.S. Patent 6,377,859) and further in view of **Brown et al.** (U.S. Patent 6,192,281).

8.1 As per Claim 19, **Leibold** teaches an apparatus for use in conjunction with a distributed process control system having a user workstation remotely located from a distributed controller that controls one or more field devices using control modules (CL1, L24-27; CL1, L33-35; CL1, L38-41; Fig. 3A and 3B); the apparatus comprising:

a computer having a memory and a processing unit (Fig. 3A; Fig. 3B, Items 370, 375 and 385);

a display connected to the computer (Fig 3A Item 205);

a controller application stored in the memory of the computer (CL1, L24-26; CL2, L49-52; CL2, L54-67; CL3, L2-8);

wherein the controller application when executed on the distributed controller implements a control module during operation of the distributed process control system (CL1, L33-35; CL1, L38-41; CL10, L7-13); and

a viewing application stored in the memory of the computer which when executed on the processing unit of the computer, communicates with the controller application and uses the display to display information (CL4, L5-10).

Leibold does not expressly teach that the controller application when executed on the computer communicates with a further controller that uses a different communication protocol than the distributed controller of the distributed process control system. **Brown et al.** '281 teaches that the controller application when executed on the computer (simulation model) communicates with a further controller that uses a different communication protocol than the distributed controller of the distributed process control system (CL1, L56-57; CL2, L10-13; CL2, L18-24; CL3, L4-16; CL4, L12-22), as that enables field devices made by different manufacturers to be used together within the same process control network; each process control device has the capability to perform a control function and to communicate with other process control devices using a standard open communication protocol (CL1, L59-61; CL 2, L10-13). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the apparatus of **Leibold** with the apparatus of **Brown et al.** '281 that included the controller application when executed on the computer (simulation model) communicating with a further controller that uses a different communication protocol than the distributed controller of the distributed process control system. The artisan would have been motivated because that would enable field devices made by different manufacturers to be used together within the same process control network; each process control device

would have the capability to perform a control function and to communicate with other process control devices using a standard open communication protocol.

Leibold does not expressly teach a viewing application stored in the memory of the computer which when executed on the processing unit of the computer, communicates with the controller application and uses the display to display information sent from the further controller. **Brown et al.** teaches execution of the one of the control modules within the computer including communicating with the further module (CL2, L1-25), as that allows devices made by different manufacturers to interoperate, the process control to be decentralized and the distributed control systems to be simplified (CL 2, L1- -25). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the apparatus of **Leibold** that included the apparatus including a viewing application stored in the memory of the computer which when executed on the processing unit of the computer, communicated with the controller application and used the display to display information with the apparatus of **Brown et al.** that included execution of the one of the control modules within the computer including communicating with the further module. The artisan would have been motivated because that would allow a viewing application stored in the memory of the computer which when executed on the processing unit of the computer, to communicate with the controller application and use the display to display information sent from the further controller; and that would allow devices made by different manufacturers to be simulated.

8.2 As per Claim 20, **Leibold, Brown et al.** and **Brown et al.** '281 teach the apparatus of claim 19. **Leibold** does not expressly teach the apparatus further including an interface connected between the further controller and the controller application. **Brown et al.** teaches the apparatus further including an interface connected between the further controller and the controller application (CL 2, L14-25), as that allows devices made by different manufacturers to communicate with one another and interoperate to effect decentralized control within a process (CL 2, L1-25). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the apparatus of **Leibold** with the apparatus of **Brown et al.** that included the apparatus further including an interface connected between the further controller and the controller application. The artisan would have been motivated because that would allow devices made by different manufacturers to communicate with one another and interoperate to effect decentralized control within a process.

8.3 As per Claim 21, **Leibold, Brown et al.** and **Brown et al.** '281 teach the apparatus of claim 20. **Leibold** does not expressly teach the apparatus wherein the interface is an OPC interface. **Brown et al.** teaches the apparatus wherein the interface is an OPC interface (CL 2, L14-25), as that allows devices made by different manufacturers to communicate with one another and interoperate to effect decentralized control within a process (CL 2, L1-25). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the apparatus of **Leibold** with the apparatus of **Brown et al.** that included the apparatus wherein the interface is an OPC interface, as

that would allow devices made by different manufacturers to communicate with one another and interoperate to effect decentralized control within a process.

Response to Arguments

9. As per the applicants' arguments, the applicants' attention is requested to the corresponding claim rejections. In addition, the following explanation is provided to further explain the Examiner's position.

9.1 As per the applicants' argument that "none of the cited art discloses or suggests that it is possible or even desirable to simulate, on a single computer, the creation and execution of various modules which are ultimately designed to be stored in and used in different devices within a distributed process control system, much less storing a configuration application to create those modules in the same computer; no combination of this art can create the system and method of claims 1-18; Leibold, clearly states that, while multiple logic blocks may be simulated, each of the simulated logic blocks is disposed within or is associated with the same "logic point" i.e., device; Leibold does not disclose or suggest that it is possible or even desirable to have a control system having logic modules distributed within multiple different process control devices, much less a simulation system that simulates the operation of these multiple logic blocks to be executed in different devices by running them on the same simulation computer", the examiner takes the position that **Leibold** teaches that it is possible or even desirable to simulate, on a single computer, the creation and execution of various control modules

which are ultimately designed to be stored in and used in different devices within a distributed process control system.

Leibold teaches an apparatus for use with a distributed process control system having a user workstation remotely located from a distributed controller that controls one or more field devices using control modules (CL1, L24-27; CL1, L33-35; CL1, L38-41; Fig. 3A and 3B); the apparatus comprising:

a computer having a memory and a processing unit (Fig. 3A; Fig. 3B, Items 370, 375 and 385);

a configuration application stored in the memory of the computer which when executed on the user workstation or computer creates one or more control modules for execution by the distributed controller and a further module for execution by a device separated from the distributed controller (CL3, L47-59; Fig. 2, Item 250; CL9, L53-62; CL10, L7-13; CL10, L17-20); and

a controller application stored in the memory of the computer which may be executed on the processing unit of the computer (CL2, L49-52; CL2, L54-67);

wherein the configuration application, when executed on the computer, further creates the one of the control modules for use by the distributed controller within the distributed process control system (CL3, L47-59; Fig. 2, Item 250; CL9, L53-62; CL10, L7-13; CL10, L17-20).

Leibold teaches that the controller application when executed on the computer causes execution of the one of the control modules and the further module within the computer to simulate the operation of the one of the control modules to thereby simulate

operation of the distributed process control system (CL2, L49-52; CL2, L54-67; CL3, L2-8; CL9, L19-30).

Leibold teaches that the apparatus further includes a simulation application stored in the memory of the computer which when executed on the processing unit of the computer, communicates with the controller application within the computer to simulate the operation of the distributed process control system (CL2, L49-52; CL2, L54-67; CL3, L2-8; CL9, L19-30).

Leibold teaches the apparatus further including a viewing application stored in the memory of the computer which, when executed on the processing unit of the computer, communicates with the controller application and uses a user interface to display information (CL4, L5-10).

9.2 As per the applicants' argument that "none of Brown, the AD, Bowling or Santoline provides the missing disclosure; Brown and the AD simply disclose or describe a distributed process control system having a configuration application and different modules (such as control modules) disposed within different devices of the process control system during operation of the process control system; Brown does not disclose the use of a simulation system what-so-ever; while the AD mentions the use of simulation systems, neither Brown nor the AD discloses or, suggests that a single computer can be used to simulate different process modules to be used in different devices of a distributed process control system or that a single computer can be used to run a configuration application for use in creating process modules to be run in different devices in as well as a simulation system that simulates the operation of those different process modules;

because none of Leibold, Brown or the AD discloses or suggests that it is possible or desirable to place the configuration application, and modules for use in different devices within a process control system in the same simulation computer to simulate the operation of the process control system, no combination of this art produces the invention recited by each of claims 1-18", the examiner directs the applicants' attention to Paragraph 9.1 above.

9.3 As per the applicants' argument that "the Santoline system does not and cannot simulate the operation of the plant without communicating with the distributed controllers actually running within the plant; as a result, Santoline cannot possibly suggest or provide a motivation for implementing a complete simulation of the distributed control software in a. single computer as Santoline specifically requires communications with the distributed process controllers within the plant; Santoline does not disclosure or suggest placing a configuration application within the-simulation computer", the examiner had used **Leibold** as described in Paragraph 9.1 above.

9.4 As per the applicants' argument that "while Bowling discloses a simulation system for a process control system, the Bowling system is specifically limited to logic within a single device, not logic within multiple different devices; Bowling specifically discloses re-hosting a controller application directly from a single controller within a process plant to the simulation system to simulate the operation of that single controller; thus, Bowling specifically requires that the simulation only simulate the logic of one device-(i.e., one controller) and requires that the control software which is to be used in

the simulation comes from the actual process controller within the plant, not from a configuration application within the simulation computer; thus, to be created, the simulation system of Bowling requires communications between separate devices and does not use a configuration application stored on the same computer as the simulation computer", the examiner had used **Leibold** as described in Paragraph 9.1 above.

9.5 As per the applicants' argument that "the system and method of claims 1-18 not only simulate control module operation once the control software for use in different devices has been created, but also simulate or allow a user to create the modules in the first place so that the user can then immediately test the modules to be run in different devices on the simulation computer to observe their operation, without having to download the controller software to a controller within the process plant and without having to communicate with any other computers or devices; none of the cited art discloses or suggests that it is even possible to provide a combined design and simulation environment in which controller software for a distributed process control system that includes modules to be run in different devices can both be created and tested on a single computer; further, because the simulation systems disclosed in the cited art all require communication between different computer devices both to be set up and to be run, none of the cited art provides a motivation or suggestion for configuration application and the controller application within the same computer, it is the inventors of this application who first recognized the need or desirability of doing so within distributed process control systems for training and controller application design purposes; the only suggestion or reasoning for providing the configuration software on the same computer as

the simulation software to simulate both the design and the operation of the process control system comes from the applicants' disclosure, and not from any of the prior art, which does not recognize the need for such a combination", the examiner respectfully disagrees. **Leibold** has used a single computer to develop the control logic and software for various modules of the distributed control system and run simulation and test the control software on the same computer as described in paragraph 9.1 above.

9.6 As per the applicants' argument that "Leibold does not recognize or suggest that the logic to be run in simulation computer to simulate the operation of the controller can also be used to communicate with a different controller, such as one actually running within the plant, to act as a viewing interface application for the different controller; the only portion of Brown cited by the examiner basically states that there are some communication protocols, like the Fieldbus protocol that, when implemented within an operating distributed process control environment, enables devices (like field devices) manufactured by different manufacturers to
interoperate and communicate with one another via a standard bus; claims 19-21 now clearly recite that the different controllers use different communication protocols; because the system of Brown merely discloses different devices that communicate together using the same communication protocol, Brown cannot describe or suggest communications between different types of controllers (i.e., ones using different communication protocols), much less placing controller software for one type of controller in a simulation or further computer and then using that computer as part of an interface to another and different type of controller; as a result, no combination of

Leibold and Brown produces the invention recited by-claims 19-21; neither of Leibold nor Brown discloses or suggests using a first controller application to interface with a second and different type of controller to enable a user to view information from the second controller using a viewing application designed for, the first controller application, as is provided by the system recited by claims 19-21; there is no motivation to combine Leibold and Brown nor would any combination of this art teach or suggest using one type of controller application as part of an interface to a second-and different type of controller as recited by claims 19-21.", the examiner has used a new reference **Brown et al.** '281.

Conclusion

ACTION IS FINAL

10. Applicant's amendments necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kandasamy Thangavelu whose telephone number is 571-272-3717. The examiner can normally be reached on Monday through Friday from 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard, can be reached on 571-272-3749. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to TC 2100 Group receptionist: 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through

Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

K. Thangavelu
Art Unit 2123
September 17, 2005

Paul L. Rodriguez
Primary Examiner
Art Unit 2125

9/19/05